Math 312, Homework 0

This will not be collected

1. Solve the system of equations (or show a solution does not exist):

$$x + 2y = 1$$
$$3x + 2y + 4z = 7$$
$$-2x + y - 2z = -1$$

2. Given the matrix A below, compute A^{-1}.

$$A = \begin{bmatrix} 1 & 1 \\ 2 & 1 \end{bmatrix}$$

3. If A is a 5×2 matrix and B is a 2×3 matrix, does the product AB make sense? What about BA?

4. For what values of the number c is the following matrix not invertible?

$$A = \begin{bmatrix} 2 - c & 5 \\ 1 & 3 - c \end{bmatrix}$$

5. Find 2×2 matrices A and B such that $AB = 0$ but $BA \neq 0$.

6. Find a 2×2 matrix A such that A^2 is the zero matrix, but A itself is not the zero matrix.